

FACTOR

(41)

$$(x^2 - 4)^3 = 0$$

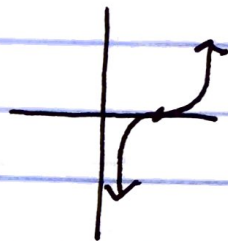
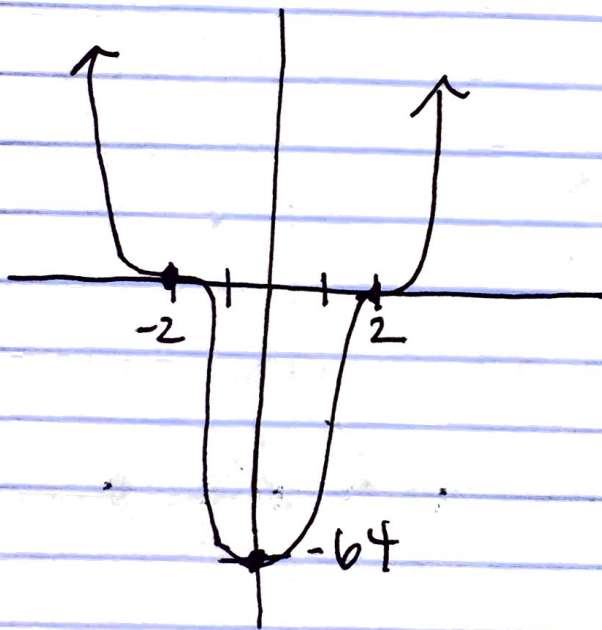
(0, -64)

$$(x^2 - 4) \left[(x+2)(x-2) \right]^3 = 0$$

$$(x+2)^3 (x-2)^3 = 0$$

$$x = -2 \text{ tr.} \quad | \quad x = 2 \text{ tr.}$$

Degree = 6
 $x \rightarrow \infty, y \rightarrow \infty$
 $x \rightarrow -\infty, y \rightarrow \infty$



(47)

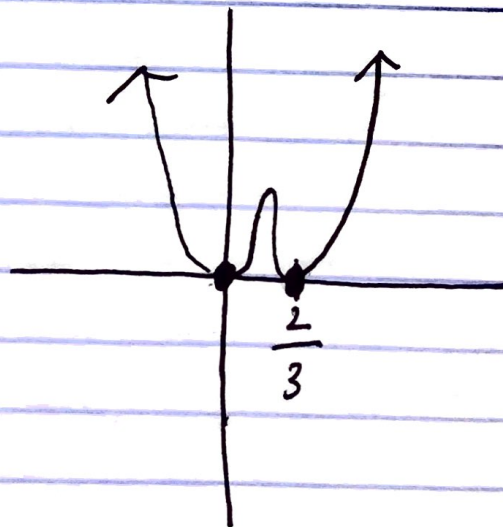
$$9x^4 - 12x^3 + 4x^2 = 0$$

$$x^2(9x^2 - 12x + 4) = 0$$

$$x^2(3x - 2)(3x - 2) = 0$$

↓

$$x = 0 \text{ PR, } \frac{2}{3} \text{ PR} \quad (0, 0)$$



$$(31) \quad t^6 + 9t^2 - 10t^4 = 0$$

$(0, 0)$ y-int.

$$t^6 - 10t^4 + 9t^2 = 0$$

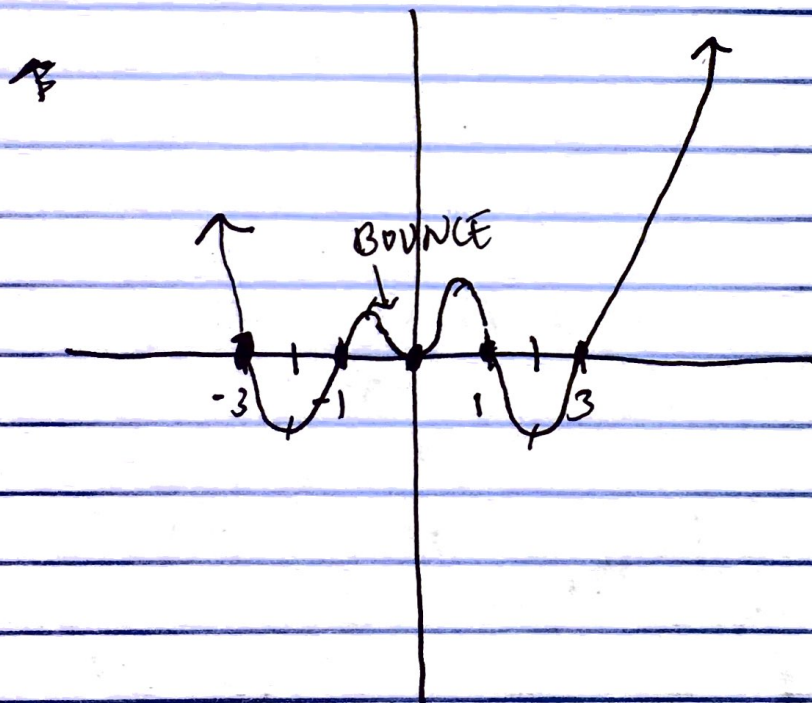
$$t^2(t^4 - 10t^2 + 9) = 0$$

$$t^2(t^2 - 1)(t^2 - 9) = 0$$

$$t^2(t+1)(t-1)(t+3)(t-3) = 0$$

$$\downarrow$$
$$t^2 = 0$$

$$t = 0 \text{ DR}, -1, 1, -3, 3$$



$$x^4 - 3x^2 - 4 = 0 = (x^2 + 1)(x^2 - 4)$$

$$(x^2 + 1)(x + 2)(x - 2) = 0$$

Degree: 4

extrema: 3

R $x \rightarrow \infty$ $y \rightarrow \infty$
 L $x \rightarrow -\infty$ $y \rightarrow \infty$

$$x^2 + 1 = 0$$

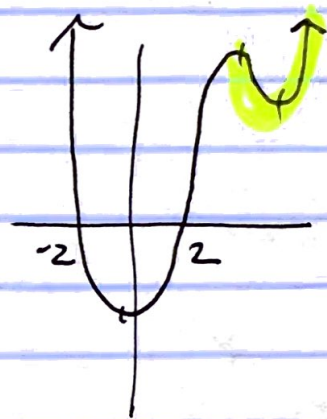
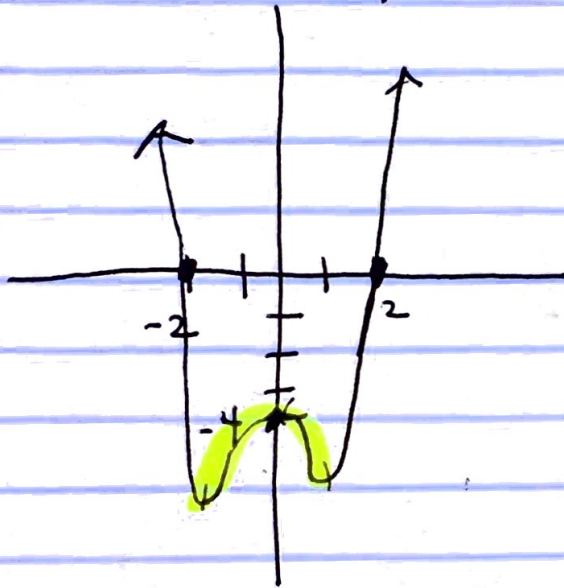
$$\sqrt{x^2} = \sqrt{-1}$$

$$x = \pm i$$

ROOTS

$$x = -2, 2, \pm i$$

y-int. (0, -4)



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$$(x-1)^4 - 4(x-1)^3 = 0$$

$$a^4 - 4a^3 = 0$$

$$a^3(a-4) = 0$$

$$(x-1)^3(x-1-4) = 0$$

$$(x-1)^3(x-5) = 0$$

$$x = 1 \text{ TR. } x = 5$$

$$(0-1)^3(0-5)$$

$$-1(-5) = 5$$

degree = 4

